REMARKS

The Examiner is thanked for the indication that claims 1, 2, 4, 7, and 30-43 are allowed.

Claims 1, 2, 4, 7, and 30-43 remain pending in the instant application. Claims 40-43 presently stand rejected. Claim 40 is amended herein. Entry of this amendment and reconsideration of the pending claims are respectfully requested.

Claim Rejections – 35 U.S.C. § 102

Claims 40-43 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Chwalck (US 5,418,802). Applicants respectfully traverse the rejections.

A claim is anticipated only if each and every element of the claim is found in a single reference. M.P.E.P § 2131 (citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628 (Fed. Cir. 1987)). "The identical invention must be shown in as complete detail as is contained in the claim." M.P.E.P. § 2131 (citing *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226 (Fed. Cir. 1989)).

Independent claim 40 recites, in pertinent part, "establishing a Bragg grating within the optical path with a plurality of electrodes positioned to perturb an effective index of refraction a plurality of times along a direction of propagation through the optical path..." Applicants respectfully submit that Chwalck fails to disclose this portion of claim 40.

First, Chwalck fails to disclose **establishing** a Bragg grating using electrodes. Rather Chwalck discloses

> This Bragg grating reflector 7 can be produced by first forming a periodic masking layer with photoresist exposed by standard holographic techniques and then using standard ion-milling to remove material in the unmasked regions. An alternative method for producing a Bragg grating reflector involves the deposition of a thin film layer of an optically transparent material on the surface of the $LiNbO_3$ wafer 5 where then a periodic masking layer is formed and etched as described above.

Chwalck, col. 5, lines 20-28. Accordingly, Chwalck discloses creating or establishing the Bragg reflector 7 using fabrication techniques such as deposition and etching. Accordingly, Bragg reflector 7 disclosed in Chwalck is a pre-existing grating fabricated

into wafer 5, not a Bragg grating established by perturbing an index of refraction using electrodes.

Second, Chwalck fails to disclose using a plurality of electrodes to perturb an effective index of refraction a plurality of times **along a direction of propagation** through an optical path. The Examiner cites FIG. 4C of Chwalck as disclosing electrodes positioned to perturb an effective index of refraction a plurality of times along an optical path. *Office Action* mailed May 27, 2005, page 2. However, Chwalck in fact discloses,

> The top 8 and bottom 9 electrodes have dimensions which correspond at least to the dimensions of the intersection of the $LiNbO_3$ channel waveguide 4 portion and the Bragg grating reflector 7. Somewhat larger electrode dimensions are desirable in order **to assure uniform electric fields in said intersecting area.**

Chwalck, col. 6, lines 40-45 (emphasis added). Accordingly, Chwalck discloses that electrodes 8 and 9 are positioned to establish "uniform electric fields" within the intersection of Bragg reflector 7 and channel waveguide 4. Therefore, Chwalck teach away from the invention by using a top and bottom electrode to establish a uniform electric field in an optical path—rather than perturbing an effective index of refraction a plurality of times along the optical path.

Third, FIGs. 2A and 2B illustrates three electrodes 11, 12, and 13 running parallel above channel waveguide 4. Since electrodes 11, 12, and 13 run parallel with the propagation direction through channel waveguide 4, as opposed to cutting across channel waveguide 4, electrodes 11, 12, and 13 are not positioned to perturb an effective index of refraction multiple times **along a direction of propagation through** channel waveguide 4. Applicants refer the Examiner to FIG. 5 of the present invention where electrodes are positioned to perturb the effective index of refraction **along a direction of propagation of optical beam 519 through optical path 517**. It should be noted that FIG. 5 is only one example embodiment covered by claim 40 and this example should not be deemed to limit claim 40.

Consequently, for the three reasons discussed above Chwalck fails to disclose each and every element of claim 40, as required under M.P.E.P. § 2131. Accordingly, Applicants request that the instant §102 rejection of claim 40 be withdrawn.

The dependent claims are novel over the prior art of record for at least the same reasons as discussed above in connection with their respective independent claims, in addition to adding further limitations of their own. Accordingly, Applicants respectfully request that the instant § 102 rejections for claims 41-43 be withdrawn.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants believe the applicable rejections have been overcome and all claims remaining in the application are presently in condition for allowance. Accordingly, favorable consideration and a Notice of Allowance are earnestly solicited. The Examiner is invited to telephone the undersigned representative at (206) 292-8600 if the Examiner believes that an interview might be useful for any reason.

CHARGE DEPOSIT ACCOUNT

It is not believed that extensions of time are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a). Any fees required therefore are hereby authorized to be charged to Deposit Account No. 02-2666. Please credit any overpayment to the same deposit account.

Respectfully submitted,
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